

## CLAIMS:

1. A method of processing analog color signals, the method comprising:  
 analog preprocessing (2, 3) sensor output signals to obtain analog  
 preprocessed signals that cause a reduced amount of digital quantization errors;  
 converting (5) the analog preprocessed signals into digital signals;  
 5 reconstructing (7) a first basic color signal ( $R$ ), a second basic color signal  
 ( $G$ ), and a third basic color signal ( $B$ ) from the digital signals; and  
 correcting (9) the basic color signals to obtain standardized signals, the  
 correcting step comprising multiplication of a three color signal matrix containing the first,  
 second and third basic color signals ( $R, G, B$ ) by a correction matrix containing coefficients  
 10 that depend on the analog preprocessing step (2, 3).

2. A method according to claim 1, wherein the analog preprocessing step  
 includes a white balance adjustment.

15 3. A method according to claim 2, wherein the coefficients of the correction  
 matrix depend on the analog preprocessing step in that correction matrix coefficients  $a_{xy}$  are  
 replaced by coefficients  $b_{xy}$  with

$$b_{11} = a_{11}$$

$$b_{12} = a_{12} \times awbR$$

$$b_{13} = a_{13}$$

$$b_{21} = a_{21} / awbR$$

$$b_{22} = a_{22}$$

$$b_{23} = a_{23} / awbB$$

$$b_{31} = a_{31}$$

$$b_{32} = a_{32} \times awbB$$

$$b_{33} = a_{33}$$

(6)

wherein  $awbR$  equals a total contribution of Red divided by a total contribution of Green  
 20 and  $awbB$  equals a total contribution of Blue divided by a total contribution of Green

wherein the total contributions of Red, Green and Blue are determined from the standardized signals.

4. A method according to claim 1, wherein the sensor output signals comprise first, second and third analog color signals  $R_a$ ,  $G_a$  and  $B_a$ , and wherein said analog preprocessing step includes respectively multiplying the color signals by

$cR$

$cG$

$cB$

where  $cR = \sum R$  if  $\sum R > 1$ , else  $cR = 1$ ;

where  $cG = \sum G$  if  $\sum G > 1$  else  $cG = 1$ ;

where  $cB = \sum B$  if  $\sum B > 1$  else  $cB = 1$ , with

$$\sum R = a_{11} + a_{12} + a_{13}$$

$$\sum G = a_{21} + a_{22} + a_{23}$$

$$\sum B = a_{31} + a_{32} + a_{33}$$

with  $a_{xy}$  being the coefficients the correction matrix would have without the analog

preprocessing step, and wherein the coefficients  $a_{xy}$  of the correction matrix are replaced by coefficients  $b_{xy}$  with

$$15 \quad b_{xy} = a_{xy}/cR \quad \text{for } x = 1, 2, 3 \quad \text{and} \quad y = 1;$$

$$b_{xy} = a_{xy}/cG \text{ for } x = 1, 2, 3 \quad \text{and} \quad y = 2;$$

$$b_{xy} = a_{xy}/cB \quad \text{for } x = 1, 2, 3 \quad \text{and} \quad y = 3.$$

5. A device for processing analog color signals, the device comprising:

means for analog preprocessing (2, 3) sensor output signals to obtain analog preprocessed signals that cause a reduced amount of digital quantization errors;

means for converting (5) the analog preprocessed signals into digital signals;

means for reconstructing (7) a first basic color signal (  $R$  ), a second basic color signal (  $G$  ), and a third basic color signal (  $B$  ) from the digital signals; and

means for correcting (9) the basic color signals to obtain standardized signals, the correcting means comprising means for multiplying a three color signal matrix containing

6. A device according to claim 5, wherein the analog preprocessing means (3) includes means (3) for carrying out a white balance adjustment.

$$\begin{aligned}
b_{11} &= a_{11} \\
b_{12} &= a_{12} \times awbR \\
b_{13} &= a_{13} \\
b_{21} &= a_{21} / awbR \\
b_{22} &= a_{22} \\
b_{23} &= a_{23} / awbB \\
b_{31} &= a_{31} \\
b_{32} &= a_{32} \times awbB \\
b_{33} &= a_{33}
\end{aligned} \tag{6}$$

wherein  $awbR$  equals a total contribution of Red divided by a total contribution of Green and  $awbB$  equals a total contribution of Blue divided by a total contribution of Green wherein the total contributions of Red, Green and Blue are determined from the standardized signals.

8. A device according to claim 5, wherein the sensor output signals comprise first, second and third analog color signals  $R_a$ ,  $G_a$  and  $B_a$ , and wherein said analog preprocessing means (2) includes means (2) for respectively multiplying the color signals by

$cR$   
 $cG$   
 $cB$

20      where       $cR = \sum R$       if  $\sum R > 1$ ,      else       $cR = 1$ ;  
              where       $cG = \sum G$       if  $\sum G > 1$       else       $cG = 1$ ;  
              where       $cB = \sum B$       if  $\sum B > 1$       else       $cB = 1$ ,      with

$$\sum B = a_{31} + a_{32} + a_{33}$$

$$b_{xy} = a_{xy}/cB \quad \text{for } x = 1, 2, 3 \quad \text{and} \quad y = 3.$$

9. A color camera comprising:  
a sensor for generating sensor output signals; and  
a device as claimed in claim 5.